We claim:

1. An application programming interface for use in a network device that forwards data packets across a network, the network device including a forwarding plane for processing data packets, the application programming interface comprising:

an input module that receives function calls;

at least one control module that receives input control data via the function calls, the at least one control module producing output control data based upon the input control data, the output control data being capable of controlling execution of the forwarding plane; and

an output module that forwards the output control data from the at least one control module.

2. The application programming interface as defined by claim 1 wherein the at least one control module comprises a plurality of objects arranged in a hierarchical tree structure, the function calls instantiating at least one of the objects for storing the output control data in a memory device.

3. The application programming interface as defined by claim 1 wherein the at least one control module includes:

a region module that identifies a specified amount of memory for storing the output control data.

4. The application programming interface as defined by claim 1 wherein the at least one control module includes:

a mapping module that specifies units of the output control data for storage in memory.

5. The application programming interface as defined by claim 1 wherein the at least one control module includes:

a read handler module that permits output control data to be read from memory by an application program.

6. The application programming interface as defined by claim 1 wherein the at least one control module includes:

a write handler module that permits the output control data to be written to memory by an application program.

7. The application programming interface as defined by claim 6 wherein the write handler module permits the output control data to be modified in memory by the application program.

8. The application programming interface as defined by claim 1 wherein the network device is a router.

9. An application programming interface for use in a network device that forwards data packets across a network, the network device including a forwarding plane for processing data packets, the application programming interface comprising:

a hierarchical tree of objects that control execution of the forwarding plane,

each of the objects being responsive to function calls from an application program,

each of the objects producing control data, based upon data in the function calls, to control execution of the forwarding plane.

10. The application programming interface as defined by claim 9 wherein one of the objects is capable of being instantiated by the application program, the one of the objects producing given control data, the one of the objects storing the given control data in memory.

11. The application programming interface as defined by claim 10 wherein the application program instantiates the one of the objects by forwarding a given function call having an instantiation message to class code for the one of the objects, the given function call having given data to be stored in memory.

12. The application programming interface as defined by claim 9 wherein the tree of objects includes:

a region object that identifies a specified amount of memory for storing the control data.

13. The application programming interface as defined by claim 9 wherein the tree of objects includes:

a mapping object that specifies units of the control data for storage in memory.

14. The application programming interface as defined by claim 9 wherein the tree of objects includes:

a read handler object that permits control data to be read from memory by the application program.

15. The application programming interface as defined by claim 9 wherein the tree of objects includes:

a write handler object that permits the control data to be written to memory by the application program.

16. The application programming interface as defined by claim 15 wherein the write handler object permits the control data to be modified in memory by the application program.

17. The application programming interface as defined by claim 9 wherein the network device includes a router.

18. A computer program product for use in a network device that forwards data packets across a network, the network device including a forwarding plane for processing data packets, the computer program product having a computer readable medium with computer program code thereon, the computer program product comprising:

program code for instantiating a hierarchical tree of objects that control execution of the forwarding plane,

each of the objects having program code that is responsive to function calls from an application program,

each of the objects having program code for producing control data, based upon data in the function calls, to control execution of the forwarding plane.

19. The computer program product as defined by claim 18 wherein one of the objects has program code for instantiating in response to function calls from the application program, the one of the objects producing given control data, the one of the objects storing the given control data in memory.

20. The computer program product as defined by claim 19 wherein the application program instantiates the one of the objects by forwarding a given function call having an instantiation message to class code for the one of the objects, the given function call having given data to be stored in memory.

21. A network device having a forwarding plane that processes data packets for forwarding across a network, the network device being capable of executing an application program that produces function calls, the network device comprising:

a processor for executing the application program; and

an application programming interface having a control module that controls the forwarding plane in response to at least one function call from the application program.

22. The network device as defined by claim 21 wherein the control module comprises a plurality of objects arranged in a hierarchical tree structure, the at least one function call instantiating at least one of the objects for generating control data that controls the forwarding plane.

23. The network device as defined by claim 21 wherein the control module includes:

a region module that identifies a specified amount of memory for storing control data for controlling the forwarding plane.

24. The network device as defined by claim 21 wherein the control module includes:

a mapping module that specifies units of control data for storage in memory, the control data controlling the forwarding plane.

25. The network device as defined by claim 21 wherein the control module includes:

a read handler module that permits control data to be read from memory by the application program, the control data controlling the forwarding plane.

26. The network device as defined by claim 21 wherein the control module includes:

a write handler module that permits control data to be written to memory by the application program, the control data controlling the forwarding plane.

27. The network device as defined by claim 26 wherein the write handler module permits the control data to be modified in memory by the application program.

28. The network device as defined by claim 21 further including a router.

29. An application programming interface for use in a network device that forwards data packets across a network, the network device including a forwarding plane for processing data packets, the application programming interface comprising:

a control module that receives control data from an application program for use by the forwarding plane, the forwarding plane processing the data packets as specified by the control data; and

a management module that receives management data for managing the forwarding plane.

30. The application programming interface as defined by claim 29 wherein the control module includes a plurality of submodules that form a hierarchical tree structure for processing the control data.

31. The application programming interface as defined by claim 30 wherein the submodules include objects formed in accord with object oriented programming principles.

32. The application programming interface as defined by claim 29 wherein the control data is received from a control plane that is a part of the network device.

33. The application programming interface as defined by claim 29 wherein the network device includes a router.